

NEW DESCRIPTIONS

DESCRIPTION OF A NEW CYPRINID, *BARILIUS DIMORPHICUS* (SUBFAMILY: RASBORINAE) FROM RAJAJI NATIONAL PARK, UTTAR PRADESH¹

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(With four text-figures)

INTRODUCTION

During a recent survey of Rajaji National Park, Uttar Pradesh, we collected interesting material of a hitherto undescribed species of the genus *Barilius* Hamilton from two localities, namely Song river (upstream near the road bridge) at Satyanarain, Eastern Doon Valley, District Dehra Dun and Ghasi Ram Sot (downstream near causeway) on Chila-Hardwar road, near Chila Forest Rest House, District Pauri-Garhwal, both tributaries of the river Ganga.

Barilius dimorphicus sp. nov.

Description: B. iii, D.II/6-7, P.I/12-13, V.I/7-8, A.III/10-11, C.17-19 (8-10/9), L.1 60-66, L.tr. 12.5/7.5, Predorsals 25-27.

In Head Length: head width 1.67-1.96. Head height 1.10-1.33. Snout length 3.12-3.67. Eye diameter 3.08-4.12. Interorbital width 2.72-3.23. Postorbital head length 1.82-2.72. Cleft of mouth 2.27-2.86. Height of dorsal fin 1.31-1.72. Dorsal base 1.79-2.09. Pectoral fin 1.25-1.47. Distance between outer edges of pectoral base 2.12-2.87. Pectoral base to pelvic base distance 1.10-1.38. Pelvic fin 1.73-2.04. Distance between outer edges of pelvic base 3.47-4.60. Pelvic base to anal base distance 1.19-1.61. Anal fin 1.96-2.29. Anal base 1.35-1.69. Length of caudal peduncle 1.17-1.60. Caudal fin (upper lobe) 0.75-0.95.

In Total Length: Head length 4.67-5.44. Body depth 4.59-5.75. Body width 6.83-10.45. Height of body at anal origin 5.25-6.76. Height of dorsal fin 7.11-8.85. Dorsal base 9.17-10.95. Pectoral fin 6.22-7.19. Pectoral base to pelvic base distance 5.47-6.89. Pelvic fin 8.32-10.45. Pelvic base to anal origin 6.04-7.50. Anal fin 9.74-11.56. Anal base

6.65-8.85. Caudal fin (upper lobe) 4.08-4.79. Predorsal distance 2.32-2.61. Post-dorsal distance 2.71-3.19. Prepectoral distance 3.97-4.48. Post-pectoral distance 1.66-1.98. Prepelvic distance 2.56-2.87. Post-pelvic distance 2.19-2.61. Pre-anal distance 1.86-2.05. Post-anal distance 3.35-4.11. Caudal peduncle length 6.33-7.93.

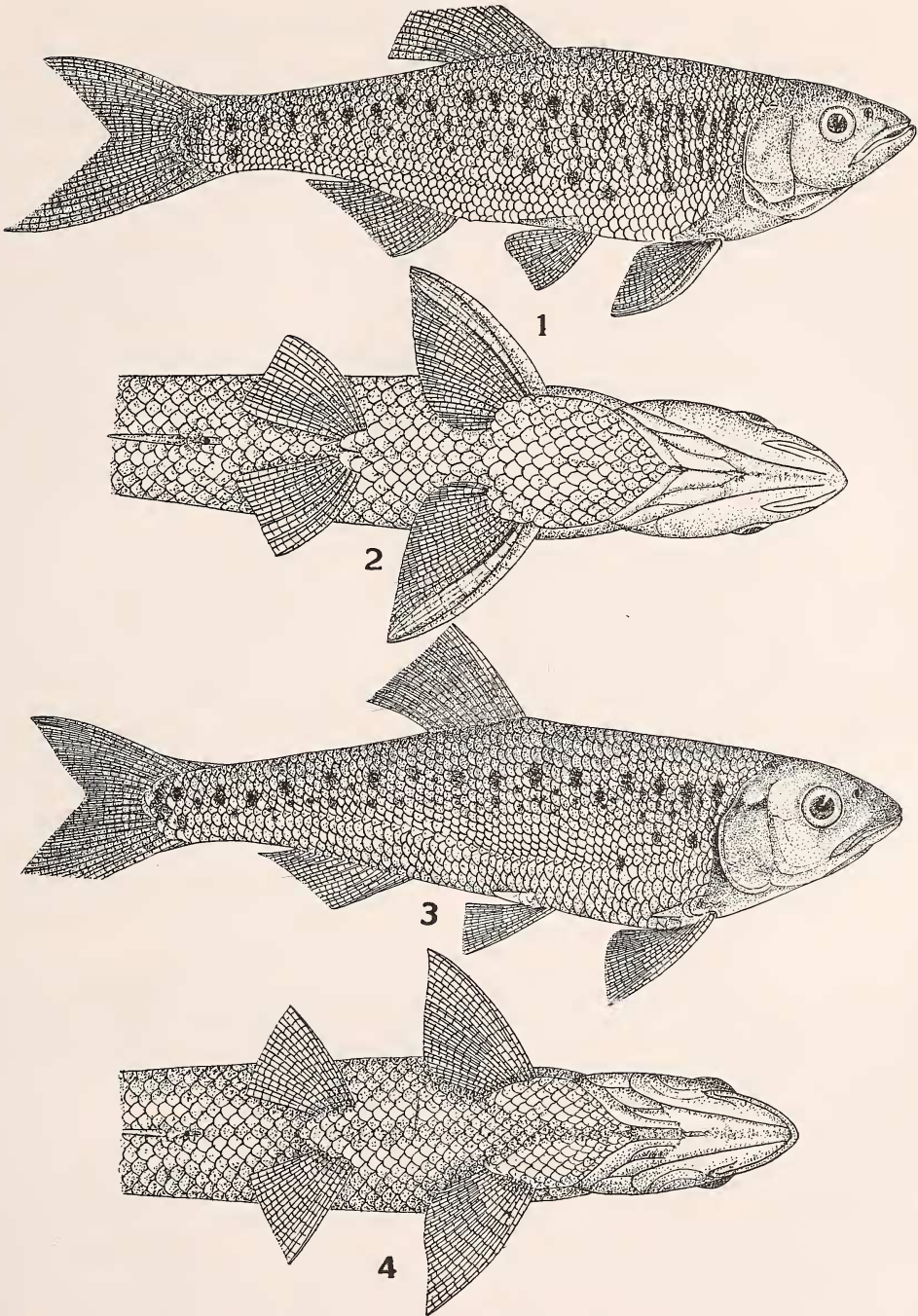
In Standard Length: Head length 3.60-4.12. Body depth 3.47-4.05. Body width 5.29-7.69. Height of body at anal origin 3.96-4.70. Height of dorsal fin 5.38-6.47. Dorsal base 7.10-7.80. Pectoral fin 4.78-5.39. Pectoral base to pelvic base distance 4.23-5.32. Pelvic fin 6.40-7.57, pelvic base to anal origin distance 4.68-5.78. Anal fin 7.48-8.87. Anal base 5.15-6.25. Caudal fin 3.08-3.50. Predorsal distance 1.79-1.95. Post-dorsal distance 2.11-2.25. Prepectoral distance 3.11-3.44. Post-pectoral distance 1.28-1.40. Prepelvic distance 1.95-2.11. Post-pelvic distance 1.70-1.92. Pre-anal distance 1.43-1.53. Post-anal distance 2.61-3.04. Caudal peduncle length 4.83-5.93.

Other Proportions: Eye diameter 0.90-1.31 in snout length and 1.00-1.37 in interorbital width. Interorbital width 1.55-1.80 and postorbital head length 1.04-1.22 in head width. Distance from snout tip to nostril 1.31-1.63 and distance from nostril to anterior margin of eye 4.50-6.18 in snout length. Length of dorsal base 1.20-1.43 in length of anal base. Length of pectoral fin 0.95-1.20 in pectoral to pelvic distance. Distance between outer edges of pectoral bases 1.16-1.67 in head width and 1.61-2.15 in pectoral to pelvic distance. Length of pelvic fin 1.27-1.59 in distance between pelvic base and anal origin. Distance between outer edge of pelvic bases 1.89-2.40 in head width and 2.69-3.50 in pelvic base to anal origin distance. Least height of caudal peduncle 1.56-1.93 in its length.

Trout-like fish. Body compressed. Lower profile comparatively more arched than upper. Abdomen rounded. Head moderately compressed.

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Barilius dimorphicus sp. nov.

1. Lateral view of male; 2. Lateral view of female; 3. Ventral view of male; 4. Ventral view of female.

Mouth terminal, cleft deep, oblique, posterior extremity of maxilla extending to below anterior margin of eye. Rostral margin and lower jaw finely tuberculated; this condition is more prominent in some specimens. Lips thin. Two pairs of barbels present (a minute rostral pair and a rudimentary maxillary pair). Jaws subequal, the lower very slightly longer than the upper; tip of upper jaw with a shallow notch into which the corresponding tip of lower jaw fits; lower jaw without a symphyseal knob. Snout obtuse, with a transverse groove or a depression in front but close to nostrils. Nostrils together, simple, distinctly nearer anterior margin of eye than snout tip and almost at level of upper margin of eye. Eyes large, slightly bulging (convex), visible both from dorsal and ventral sides of head. Interorbital space slightly arched. Suborbital ring of bones wide, especially the 3rd which is the deepest and comparatively narrower than the opercular width.

Dorsal fin short, margin almost cut; and when folded against body, the tips of anterior rays not reaching tip of last ray. Its longest ray (the last undivided ray) much shorter than body depth below and at anal origin, slightly shorter than pectoral fin and slightly longer than pelvic fin and longest ray of anal fin. Tip of last dorsal ray extending to middle of anal base. Dorsal origin midway between the pelvic and anal bases, much nearer caudal base than tip of snout; it is almost midway between middle of eye and caudal base. Pectorals shorter than head, their tips pointed or nearly so. Pectoral length somewhat variable, generally not reaching pelvic base but in some examples, it does so and may even extend slightly beyond the origin of pelvic base. 1st branched ray of pectoral ossified in mature males. Axillary scale of pectoral fleshy, slightly longer than the diameter of eye. Pelvics shorter than pectorals, margin (posterior extremity) notched. Outer unbranched and 1st branched rays of pelvics equal in length and extend to below anterior 1/3rd of dorsal base. The last two branched rays thickened and almost fused at base. Pelvic fin distinctly not reaching anal opening (which lies at anal base origin), falling short of a distance almost equal to eye diameter. Axillary scale of pelvic thin, longer than the axillary scale of pectoral and extending beyond pelvic base. Anal origin just below the base of last dorsal ray; fin margin concave. Last anal ray shortest (almost equal

to eye diameter), reaching almost middle of caudal peduncle. Anal fin base longer than that of the dorsal. Caudal peduncle narrow, distinctly longer than high. Caudal fin's deeply forked, the fork extending to more than half the fin's length (lower lobe); lobes pointed, lower caudal lobe distinctly longer than the upper and also the head length. Upper lobe generally shorter than head length (sometimes equal). Scales minute (visible to naked eye). In some large specimens, the margin of scales of upper region, especially the anterior part, are studded with prominent tubercles, imparting to the surface a rough texture. This is a secondary sexual character of males. Lateral line complete, curved downward, passing below the mid line of caudal peduncle.

Coloration: Silvery. Body with 2-4 irregular rows of bluish-black spots of varying sizes. These spots are generally vertically oval. The rows of spots do not generally extend below the lateral line. The spots of the uppermost row (14-16 in number) are the biggest. Head and body dorsally darkish. Eyes with blackish pupil and golden iris. Dorsal fin greyish except its upper corner which is whitish. Pectoral, pelvic and anal fins are also whitish. Caudal fin greyish, lower lobe more so.

Sexual Dimorphism: In mature males, the margin of scales on anterior region of body (below and in front of dorsal) are studded with fine tubercles. The lower jaw and the area between the mandibles and branchiostegal rays are covered with tubercles which are spiny in nature. The first branched ray of pectoral fin is ossified and strongly developed. The females lack these characters

Holotype: 185 mm total length, 140 mm standard length. Song river near its union with Teenpani nala, Satyanarain, Eastern Doon Valley, Rajaji National Park, Dist. Dehra Dun, Uttar Pradesh. 13 September 1987. Raj Tilak and Akhlaq Husain. Regd. No. ZSI/NRS/F-728.

Paratypes - A. 5 examples, 115-171 mm total length, 81-133 standard length. Other data same as of Holotype. Regd. No. ZSI/NRS/F-729.

Paratypes - B. 7 examples, 104-147 mm total length, 80-111 mm standard length. Locality same as of Holotype and Paratype - A. 14 September 1987. Raj Tilak and Akhlaq Husain. Regd. No. ZSI/NRS/F-730.

Paratypes - C. 2 examples. 94-112 mm total

length, 75–76 mm standard length. Ghasi Ram Sot Stream, near Chila Forest Rest House, Chila–Hardwar Road, Rajaji National Park, District Pauri–Garhwal, Uttar Pradesh. 12 September 1987. Raj Tilak and Akhlaq Husain. Regd. No. ZSI/NRS/F–731.

Barilius dimorphicus sp nov. is closely related to *Barilius tileo* Hamilton – an Eastern Indian form, but can be easily distinguished from it in a number of characters, especially in the extent of maxilla and lepidosis as per the details given below:

1. Lower jaw slightly longer, when the mouth is closed, in *Barilius dimorphicus*, (vs. upper jaw slightly longer, when the mouth is closed, in *Barilius tileo* Hamilton–Hamilton 1822, Day 1878, 1889).
2. Posterior extremity of maxilla reaching anterior margin of eye (vs. reaching to beneath the middle of eye – Day 1878, 1889).
3. Two pairs of minute barbels (rostral and maxillary) present (vs. devoid of tendrils according to Hamilton 1822; barbels very rudimentary or entirely absent – Day 1878, 1889).
4. Eye diameter 1.00–1.37 times in interorbital width (vs. 1.50 times – Day 1878, 1889).
5. Dorsal fin midway between middle of eye and caudal base (vs. midway between hind edge of eye and caudal base – Day 1878, 1889).
6. Pectoral fin generally longer than head excluding the snout (vs. as long as head excluding the snout – Day 1878, 1889).

7. Caudal fin with 17–19 rays (vs. 20 rays – Day 1878, 1889).
8. 60–66 scales in lateral line (vs. 70–75 scales – Day 1878, 1889).
9. 12.5 rows of scales between dorsal fin and lateral line (vs. 14 rows of scales – Day 1878, 1889).
10. 25–27 rows of scales before the base of the dorsal fin (vs. 30 rows of scales – Day 1878, 1889).
11. 185 mm in total length (vs. attaining at least 127 mm = 5 inches in length – Day, 1878, 1889).
- 12.. Distribution: Rajaji National Park (Dehra Dun and Pauri–Garhwal districts, Uttar Pradesh) (vs. Kosi river – Hamilton 1822; Bengal and Assam – Day 1878, 1889).

In the same locality, in the Ganga and its tributaries there is a similar looking species, *Raiamas bola* Hamilton which differs from the new species in the deep cleft of the mouth. The cleft of the mouth extends posteriorly up to anterior margin of eye in *B. dimorphicus* whereas it reaches beyond the posterior margin of the eye in *R. bola*. They also differ greatly in the number of lateral line scales on body (60–66 in *B. dimorphicus* vs. 88–94 in *R. bola* – Day 1878, 1889).

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